

**WHAT IS CLAIMED IS:**

1. A method for converting an electronically originated image into a modified electronic image simulating an image originated from a film system and converted into an electronically displayed image , said method comprising the steps of:

providing a set of electronic camera system spectral product curves that are substantially approximated by a linear combination of a set of spectral product curves characteristic of the film system;

capturing an image having red, green and blue exposure signals resulting from the electronic camera system spectral product curves; and

converting the red, green and blue exposure signals into a modified electronic image simulating an image originated from a film system and converted into an electronically displayed image.

2. The method as claimed in claim 1 further including an image sensor having a set of image sensor spectral product curves, and wherein the step of providing a set of electronic camera system spectral product curves comprises modifying the set of image sensor spectral product curves by positioning one or more optical filters in front of the image sensor during the capture of the image.

3. The method as claimed in claim 1 further including an image sensor having a set of image sensor spectral product curves, and wherein the step of providing a set of electronic camera system spectral product curves comprises providing the image sensor with a color filter array that provides the set of electronic camera system spectral product curves.

4. The method as claimed in claim 1 wherein the step of converting the red, green and blue exposure signals comprises the steps of:

converting the exposure signals into equivalent film system exposure signals;

transforming the equivalent film system exposure signals into monitor exposure signals, according to the color matching functions of a display device;

applying film telecine transfer tone scale characteristics to the monitor exposure signals; and

compensating the monitor exposure signals for the transfer characteristic of the display device.

5. The method as claimed in claim 4 wherein the step of converting the exposure signals into equivalent film system exposure signals is performed by application of a matrix.

6. The method as claimed in claim 4 wherein the step of transforming the equivalent film system exposure signals into monitor exposure signals is performed by application of a matrix.

7. The method as claimed in claim 4 wherein the step of applying film telecine transfer tone scale characteristics to the monitor exposure signals is performed by application of one or more look up tables.

8. The method as claimed in claim 4 further comprising the step of displaying the compensated monitor exposure signals on the display monitor.

9. The method as claimed in claim 4 wherein the step of compensating for the transfer function of a display monitor is performed by one or more look up tables.

10. The method as claimed in claim 1 wherein the degree of approximation between the set of electronic camera system spectral product curves and the linear combination of a set of spectral product curves characteristic of the film system is determined by measuring (a) a maximum variation, in

exposure stops, between exposure values captured as electronically originated images and converted into equivalent film system exposure signals and exposure values yielded from the film system and (b) a noise-gain factor of a matrix used to convert the electronically originated images into equivalent film system exposure signals.

11. A method employing an electronic capture system for converting an electronically originated image of a scene into a set of modified electronic images simulating monochromatic red, green and blue exposures originated from a film system and converted into an electronically displayed image, said method comprising the steps of:

providing a set of electronic camera system spectral product curves that are substantially approximated by a linear combination of a set of spectral product curves characteristic of the film system;

capturing an image having red, green and blue exposure signals resulting from the electronic camera system spectral product curves;

converting the exposure signals into equivalent film system exposure signals;

mapping equal increments of film system exposure signals onto film code values;

mapping the film code values to monitor code values in order that visual intensity differences between areas on the reproduction of a scene are proportional to the ratio of the exposure level of those areas as seen by the film system;

generating three monochromatic images, each monochromatic image revealing the exposure content of one of the three color channels; and

displaying one or more of the three monochromatic images in order to evaluate the exposure content of the scene.

12. The method as claimed in claim 11 further comprising the step of adjusting the gain of the electronic capture system in order to define a triplet of code values that define a point of normal (reference) exposure.

13. A camera system for converting an electronically originated image into a modified electronic image simulating an image originated from a film system and converted into an electronically displayed image, said system comprising:

an electronic camera for capturing an image and generating red, green and blue exposure signals, said electronic camera including an electronic capture device providing a set of electronic camera system spectral product curves that are substantially approximated by a linear combination of a set of spectral product curves characteristic of the film system; and

a processing stage for converting the red, green and blue exposure signals into a modified electronic image simulating an image originated from a film system and converted into an electronically displayed image.

14. The system as claimed in claim 13 wherein the electronic camera system spectral product curves are provided by modifying a set of electronic capture device spectral product curves by one or more optical filters that are used in capturing the image.

15. The system as claimed in claim 13 wherein the electronic camera system spectral product curves are provided by a color filter array on the capture device that provides the set of electronic camera system spectral product curves.

16. The system as claimed in claim 13 wherein the processing stage converts the exposure signals into equivalent film system exposure signals through a matrix operation.

17. An electronic camera for capturing an image and generating red, green and blue exposure signals, said electronic camera comprising an electronic capture device providing a set of electronic camera

system spectral product curves that are substantially approximated by a linear combination of a set of spectral product curves characteristic of the film system.

18. The camera as claimed in claim 17 wherein the electronic camera system spectral product curves are provided by modifying a set of electronic capture device spectral product curves by one or more optical filters that are used in capturing the image.

19. The system as claimed in claim 17 wherein the electronic camera system spectral product curves are provided by a color filter array on the capture device that provides the set of electronic camera system spectral product curves.

20. An optical filter providing a spectral transmittance curve shape that, when combined with the spectral product curves of an electronic capture device, provides a set of spectral product curves that are substantially approximated by a linear combination of a set of spectral product curves characteristic of a film system.

21. A method for capturing an electronically originated image in a form that can be converted into a modified electronic image simulating an image originated from a film system, said method comprising the steps of:

providing a set of electronic camera system spectral product curves that are substantially approximated by a linear combination of a set of spectral product curves characteristic of the film system; and

capturing an image having red, green and blue exposure signals resulting from the electronic camera system spectral product curves.

22. The method as claimed in claim 21 for converting the electronically originated image into a modified electronic image simulating an image originated from a film system, said method comprising the further step of

converting the red, green and blue exposure signals into a modified electronic image simulating an image originated from a film system.

23. The method as claimed in claim 22 wherein the step of conversion is a matrix operation.

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